4-Channel H.264 Network Video Encoder User Manual

Product: BLK-IPE4101

Please read this manual before using your encoder, and always follow the instructions for safety and proper use. Save this manual for future reference.

BLK-IPE4101_PM
8/1/11

WARNING

RISK OF ELECTRIC SHOCK. DO NOT OPEN.

To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION

Operate this encoder only in environments where the temperature or humidity is within the recommended range. Operation in extreme temperatures or humidity levels may cause electric shock and shorten the life of the product.

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SECTION 1
Features

The DIGIOP™ Black BLK-IPE4101 4-channel IP video encoder is a professional, premium-grade, state-of-the-art encoder designed for indoor installation in networks where exceptional video and audio quality is required with minimal bandwidth and storage available. Features include:

- 4-channel, H.264, MPEG-4, and MJPEG real-time encoding at D1
- 4 channel audio input, 4 channel audio output support
- Dual streaming mode with different codec/resolution/bit rate
- Enhanced deinterlacing on DSP
- Audio compression: G.711
- Embedded intelligent video analytics
- Burnt-in text, video motion detection support
- Remote firmware upgrade over network
- Loop-out video for external monitors
- RS-485/422 serial port for Pan/Tilt/Zoom
- RS-232C serial port
- On Screen Display (OSD) by hardware

BLK-IPE4101 Encoder

1.1 Front panel indicators and connectors

Status and Data LEDs on the front panel are provided for each IP encoder channel.

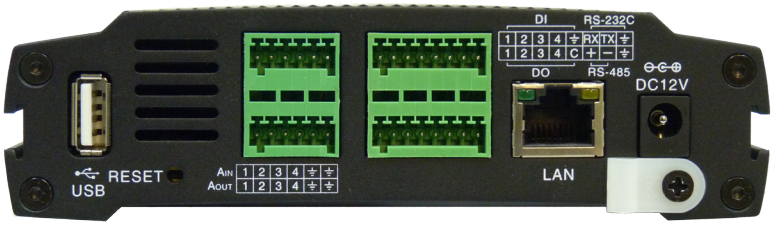
Table 1. Status and Data LEDs indications

Status	Data	Item
OFF	OFF	Power OFF
System initialization		
Off	Blinking Dark Orange	In Process
Orange	Off	Normal State
Orange	Dark Orange	Abnormal State
Kernel booting up		
Orange	Green	In Process
Orange	Off	Normal State
Orange	Green	Abnormal State
Video streaming service		
Blinking Green	Off	Normal
Green	Off	Abnormal
DSP operation status		
Orange blinks at every 1 second	Off	Normal
Orange blinks at every 1 second	Red	High Overload

Vin Video input BNC connector (4)

Vout For loop out of video input

1.2 Back panel connectors



BLK-IPE4101 Encoder back panel

USB Connect to a USB device (or USB hub) for external storage.

Ethernet RJ-45 LAN connector for 10/100Base-T Ethernet.

Pin block Terminal for audio output/input (A_{in}, A_{out}, alarm out (DO), sensor in (DI), and RS-232/RS-485 serial devices

Reset Reset switch for restarting the encoder, or resetting the encoder to factory default settings.

DC12V Power adapter connector.

SECTION 2
Installation and Setup

2.1 What's in the box

Your encoder includes the following:

- BLK-IPE4101 encoder
- 12 V DC power adapter
- 6-pin terminal blocks (2)
- 8-pin terminal blocks (2)
- Hardware installation kit including mounting brackets (2), screws (4), and wall inserts (2)
- CD mini disk with application software, software manual, and encoder user manual (this document)

2.2 Tools you need

To install the encoder, you will need:

- Phillips #2 screwdriver
- Drill 1/4" drill bit
- PC with Microsoft® Windows® XP SP3 or newer, 32- or 64-bit system

2.3 Install the encoder

1. Determine where the encoder will be mounted and record the 4 (one for each IP channel) Media Access Control (MAC) address of the encoder. The MAC address can be found on a label on the underside of the encoder and are listed as channel 1 (top) to channel 4 (bottom). Record the information in the following table.

Location:
Channel 1 MAC address:
Channel 2 MAC address:
Channel 3 MAC address:
Channel 4 MAC address:

NOTE *The Channel 1 MAC address is associated with the Vin1 analog input, Channel 2 MAC address is associated with the Vin2 analog input, etc.*

2. Slide the mounting brackets provided in the hardware kit into the slots on the side of the encoder.

3. Do one of the following:

   — If the mounting surface is a hard material, use the 1/2" self-tapping mounting screws provided in the hardware kit to secure the encoder to the surface.
   OR
   — If the mounting surface is a soft material:

      i. Using the encoder with the mounting brackets as a template, mark the location of the mounting screw holes.

      ii. Drill 1/4" holes in the location of the mounting screw holes for the wall inserts provided in the hardware kit.

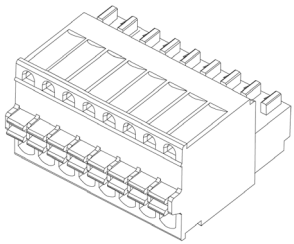
      iii. Tap the wall inserts into the holes until they are flush with the surface.

      iv. Use the 1-1/8" screws provided in the hardware kit to secure the encoder to the surface.

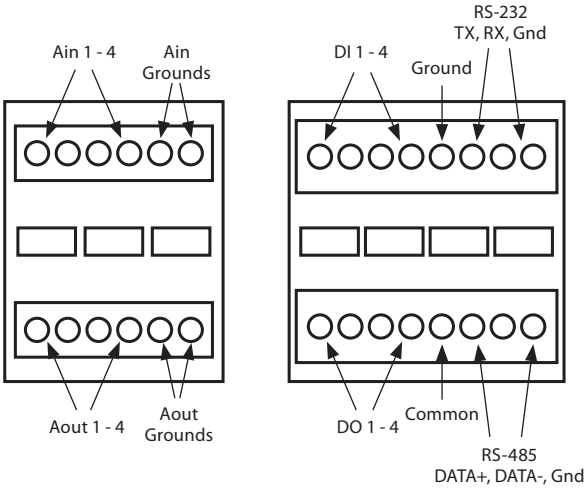
4. Connect an analog signal source (camera video) to the Vin BNC connector on the front of the encoder.

2.4 Connections

Connections to the encoder for audio in and out (microphone A_{in} and speaker, A_{out}), sensor in (DI), alarm (DO), video out BNC, RS-232C, and RS-485 control are made through two 8-pin terminal blocks and two 6-pin terminal blocks. The terminal blocks may be detached from the encoder. Plug the four blocks into the connectors on the back of the encoder.



8-pin terminal block



Terminal block pin assignments

2.4.1 Audio in/out connections (Ain, Aout, channels 1 - 4)

The encoder includes an interface for a mono audio input (from a microphone) and a mono audio output (to a speaker) for each channel. The audio output is a low level signal that requires an amplified speaker (see Specifications).

To connect a speaker and/or microphone to the encoder:

1. Route speaker and/or microphone wiring to the encoder.

2. Strip 1/4" of insulation from the wires speaker signal and ground wires and insert them into the lower 6-pin terminal block on the Aout and Aout Ground pins, respectively.

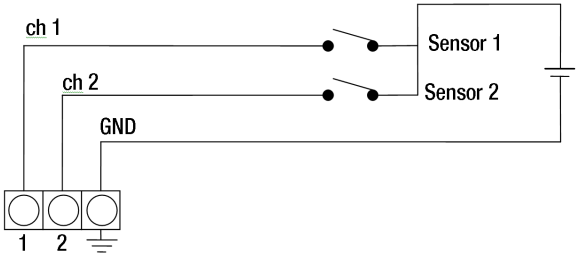
3. Strip 1/4" of insulation from the microphone signal and ground wires and insert them into the upper 6-pin terminal block on the Ain and Ain Ground pins, respectively.

2.4.2 Sensor in connection (DI, channels 1 - 4)

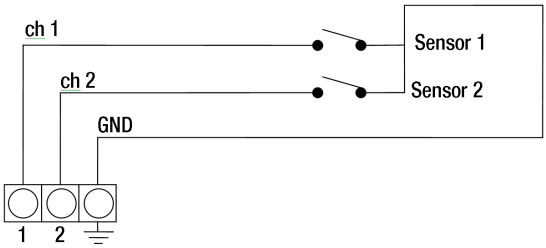
The encoder provides four input channels for sensors, one for each channel. The sensors can be either all voltage or all relay type sensors. For voltage type sensors, see Specifications for allowable voltage levels. The configuration of each sensor input wiring is illustrated in the diagrams below.

CAUTION

Do not exceed the maximum input voltage or the relay switching rate. Refer to specifications in this manual for more information.



Voltage type sensor wiring schematic



Relay type sensor wiring schematic

To connect a sensor to the encoder:

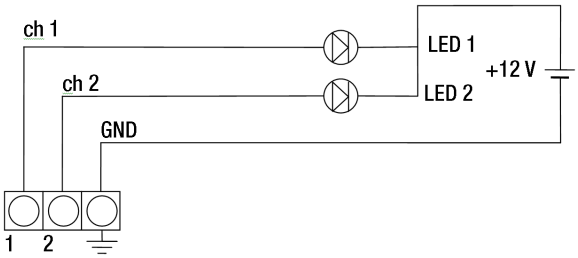
1. Route sensor wiring to the encoder.

2. Strip 1/4" of insulation from one sensor's sense and ground wires and insert them into the upper 8-pin terminal block in the DI (for channel 1, 2, 3, or 4) and DI Ground pin locations, respectively.

3. Strip 1/4" of insulation from another sensor's sense and ground wires and insert them into the upper 8-pin terminal block in the Ground pin locations, respectively.

2.4.3 Digital out (DO) connection

The encoder supports up to four digital out connections to reporting devices in the configuration shown in the schematic below.



Digital out wiring schematic

To connect digital out reporting device to the encoder:

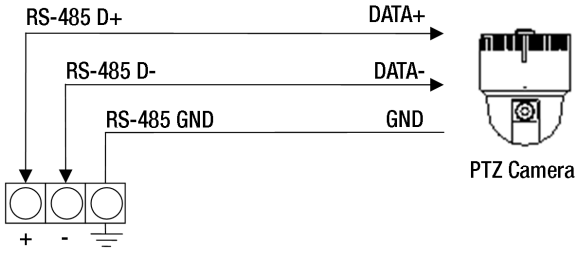
1. Route leads from the digital out devices to the encoder.

2. Strip 1/4" of insulation from one device's signal and ground wires and insert them into the lower terminal block in the DO ch 1 and DO GND pin locations, respectively.

3. Strip 1/4" of insulation from another device's signal and ground wires and insert them into the lower terminal block in the DO ch 2 and DO GND pin locations, respectively.

2.4.4 RS-485 device connection

The encoder provides one RS-485 interface connection. The wiring signal polarity and ground to the lower terminal block are shown in the schematic below.



RS-485 device wiring schematic

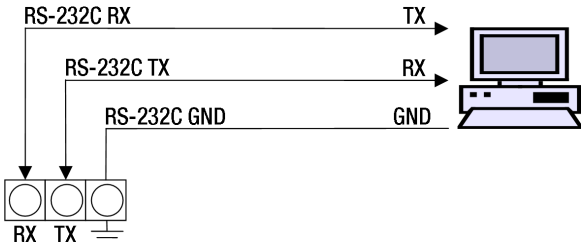
To connect an RS-485 device wiring to the encoder:

1. Route wiring from the RS-485 device interface to the encoder.

2. Strip 1/4" of insulation from DATA+, DATA-, and GND wires from the device and insert them into the lower terminal block RS-485 D+, RS-485 D-, and RS-485 GND pins, respectively, as shown in the schematic above.

2.4.5 RS-232C device connection

The RS-232C encoder interface can be connected to some devices, such as a Point of Sale (POS) terminal. The wiring signal polarity and ground to the upper terminal block are shown in the schematic below.



RS-232C device wiring schematic

To connect an RS-232C device wiring to the encoder:

1. Route wiring from the RS-232C device interface to the encoder.

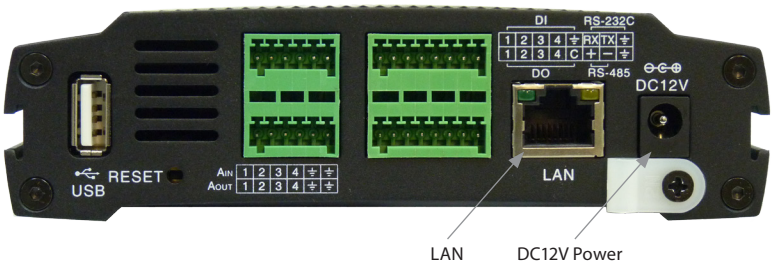
2. Strip 1/4" of insulation from TX, RX, and GND wires from the device and insert them into the upper terminal block RS-232C TX, RS-232C RX, and RS-232C GND pins, respectively, as shown in the schematic above.

2.4.6 LAN, video, and power connections

1. Attach the network LAN cable to the RJ-45 connector on the encoder back panel. If the encoder is powered through the LAN cable, **DO NOT apply power** to the encoder at this time.

2. Attach the video stream from your camera to the Vin1, Vin2, Vin3, and Vin4 BNC connector on the front of the encoder.

NOTE *Encoder Channel 1 is associated with the Vin1 analog input, Channel 2 is associated with the Vin2 analog input, etc.*



LAN and power connections

CAUTION

Overvoltage and overcurrent will cause severe damage to the encoder.

2.5 Install IPAdmin Tool

The IPAdmin Tool, included on the CD mini disk, is a utility that will discover cameras and encoders installed on your network and enable you to perform the initial network setup for each. After a encoder is setup on the network, the Microsoft Internet Explorer® web browser can be used to see video from the encoder, set the encoder's password, date and time, finalize encoder hardware adjustments, and configure the encoder for functional requirements.

The IPAdminTool can be loaded on a Microsoft Windows XP, Vista or Windows 7 operating system (32- or 64-bit). To use this utility for the initial setup of your encoder, your computer must be connected to the same network subnet as your encoder.

At a computer on the same LAN (subnet) where your encoders will be installed, do the following:

1. Insert the CD mini disk provided with your camera into your computer's CD ROM drive and open the CD in a Windows Explorer window.

2. Find the IPAdminTool directory on the CD.

3. Copy the IPAdminTool directory with its contents to your computer hard drive.

2.6 Configure the encoder network settings

Devices attached to a Local Area Network (LAN) are each assigned a unique address (IP address) that they use when sending messages with each other. No two devices on a single Ethernet network can have the same IP address. Otherwise, addressing conflicts will occur.

When your IP encoder is attached to a network and initially powered on, it attempts acquire compatible network settings, for each its four IP channels, from a DHCP server. If it cannot find a DHCP server, it configures itself with the following static IP address, subnet mask, and gateway setting, which may or may not be compatible with other devices on the network.

IP address:	192.168.0.100
Subnet mask:	255.255.255.0
Gateway:	192.168.0.1

Whether it acquires a dynamic (changeable) IP address and other network settings from a DHCP server, or uses the default static (fixed, unchanging) settings, your encoder must be configured with static network settings that are compatible with the network configuration. Additionally, if DHCP is not used on your network, DIGIOP™ Black encoders must be installed on the network and configured with new network settings one at a time to avoid addressing conflicts.

Use the following procedure to setup and apply compatible, static, network settings for your encoder. If connecting your encoder to a large enterprise network, consult with your network administrator for network settings before attaching the encoder to the LAN to ensure that your encoder won't conflict with other devices. Your network administrator should also setup WAN (Internet) access to the encoder, if that is needed.

If you encounter a problem and need to contact Technical Support, first complete the chart in Table 1 about your computer (PC) and encoder network settings, if possible. Support will need this information to provide assistance.

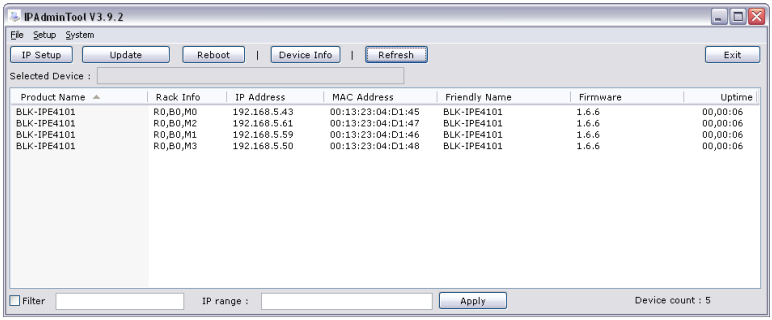
2.6.1 Configuring encoders on networks with DHCP

In networks with a DHCP server, the IP encoder will acquire dynamic (changeable) network settings when it is initially powered on. These dynamic settings can easily be converted to static settings, or changed to other static settings that are also compatible with your network.

1. Connect your encoder to the LAN, then power on the encoder.

2. Open the IPAdminTool directory on your computer, then double click the file **IPAdminTool.exe** to start the application. When the IPAdmin Tool starts, it will discover all the IP devices it supports that exist on the network. The discovery process may take a few minutes.

NOTE *This 4-channel encoder will acquire four IP addresses, one for each IP interface. It will appear on the network as four separate devices.*



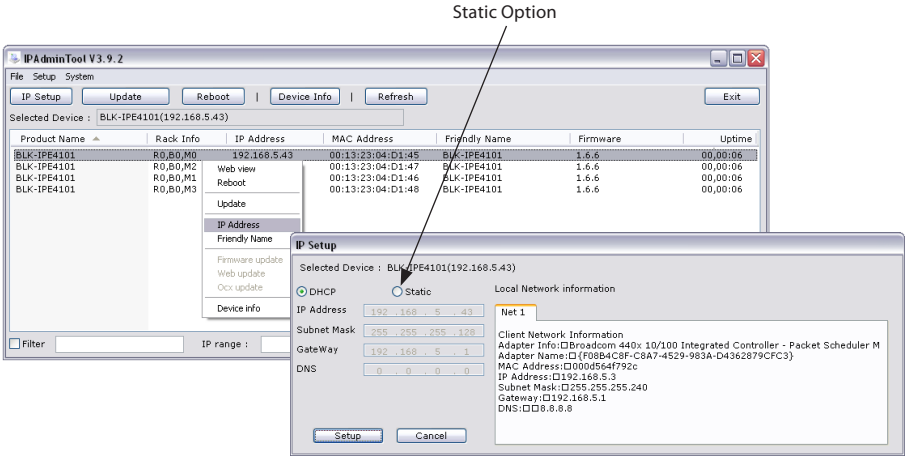
Check the list of devices found by IPAdmin Tool. You can identify your encoder by the MAC addresses. The MAC addresses are assigned during manufacture and can be found on the label on the underside of the unit. In this example, the IP addresses were acquired through DHCP. The IP addresses you see with your encoder will probably be different from those seen above.

The Rack Info field "M" number is directly associated with the Vin channel (M0 for Vin1, M1 for Vin2, etc.). Notice that in the display the Rack Info identifiers do you appear in order. See the following table for the example shown above.

Rack Info	Vin Channel	IP Address (via DHCP)	MAC Address
R0, B0, M0	Vin1	192.168.5.43:	00:13:23:D4:D1:45
R0, B0, M1	Vin2	192.168.5.59	00:13:23:D4:D1:46
R0, B0, M2	Vin3	192.168.5.61	00:13:23:D4:D1:47
R0, B0, M3	Vin4	192.168.5.50	00:13:23:D4:D1:48

If an encoder channel was not found, click the **Refresh** button every minute until the four channels for your encoder appear in the list.

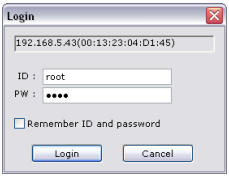
3. In the IPAdmin Tool device list, use the encoder's MAC addresses to find the encoder you are installing. After finding the encoder, right click the device for rack entry R0,B0,M0, then select **IP Address** from the drop-down list. An IP Setup window will open.



4. In the IP Setup window, click the **Static** option bullet to select this option.

   If you have other compatible network settings you want to apply to the device, enter them in the appropriate locations. Click **Setup** to save settings, then click **OK** to confirm the change to network settings.

5. In the **Login** window, enter the ID and PW (password) for your encoder and click **Login**. The default administrator values for the ID and PW are **root** and **pass**. After entering ID and PW, the IP Setup window closes.



6. In the IPAdmin Tool window, click **Refresh** and verify that the entry representing the encoder now shows the new IP address.

7. Repeat these steps to establish a fixed IP address for each encoder channel.

8. Continue with procedure **2.7 Setup encoder Basic Configuration**.

2.6.2 Configuring encoders on networks without DHCP

Encoders installed on a network without a DHCP server will initially use the factory default static network settings for each IP channel:

IP address:	192.168.0.100
Subnet mask:	255.255.255.0
Gateway:	192.168.0.1

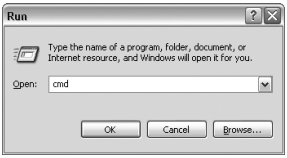
In networks without a DHCP server, encoders must be powered on and reconfigured one at a time to avoid addressing conflicts between other encoders, or possibly with another device on the network. Configuring the network settings of your encoders includes these steps:

- Determine the network settings of your computer.
- Check the network for compatibility with the default static network settings of your encoder.
- Find four network settings (IP addresses) that are not in use and can be assigned to the IP channels of your encoder.
- Attach your encoder to the network, power it on, and configure the four IP channels with new network settings.

Determine the network settings of your computer

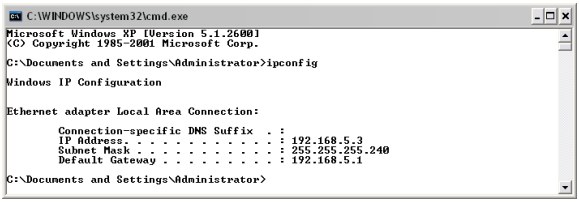
1. At a PC attached to the same LAN that will be shared with your encoder, determine the IP address, subnet mask, and default gateway of your PC and record it in Table 1. To find this information, do the following at the Windows desktop:

   a. Hold down the **Windows** key and press **r** to open the Run dialog box.



   b. Type **cmd** in the entry field, then click **OK** to open the DOS command window.

   c. At the command prompt, enter **ipconfig.** The response will show the your PC's network settings.


C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.5.3
Subnet Mask . . . . . : 255.255.255.240
Default Gateway . . . . . : 192.168.5.1
C:\Documents and Settings\Administrator>

*Example: Typical use of **ipconfig** in Windows XP*

d. Enter the IP Address, Subnet Mask, and Default Gateway for your PC's Ethernet adapter into Table 1.

NOTE *The Ethernet adapter data you see by using ipconfig will probably be different from that shown in the example above. If you are using Windows Vista or Windows 7, the IP address is identified as the "IPv4 Address."*

Table 2. PC/Encoder network settings

	Computer (PC)	Encoder
IP Addresses		R0,B0,M0:
		R0,B0,M1:
		R0,B0,M2:
		R0,B0,M3:
Subnet Mask		
Default Gateway		

CAUTION *If connecting your encoder to an enterprise network, consult with your network administrator for the encoder IP addresses, subnet mask, and default gateway.*

Find network settings (IP addresses) that are not in use

1. At your PC, find an IP address on your network that is not in use:

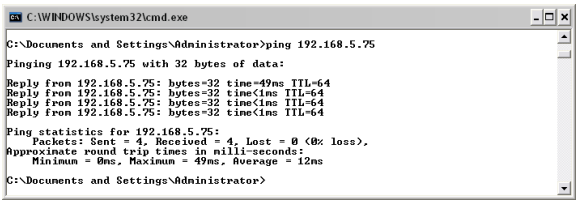
   a. Write down the EXACT IP address of your PC up to the third/last period. Using the example shown above, this expression is: 192.168.5.

   b. After the third period, include any number between 1 and 254 that is different from the one in your PC's IP address, 3. As a first try, let's choose 75, which will form the IP address 192.168.5.75.

   c. Next, use the ping command in the DOS window to see if this IP address is in use on your network. The format of the ping command is:

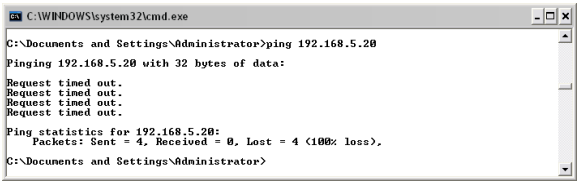
      ping <IP address>

      To test this IP address, enter **ping 192.168.5.75**. Any reply received from the ping indicates that a device on the network is already using this IP address and you can connect to it.


C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator>ping 192.168.5.75
Pinging 192.168.5.75 with 32 bytes of data:
Reply from 192.168.5.75: bytes=32 time=49ms TTL=64
Reply from 192.168.5.75: bytes=32 time<1ms TTL=64
Reply from 192.168.5.75: bytes=32 time<1ms TTL=64
Reply from 192.168.5.75: bytes=32 time<1ms TTL=64
Ping statistics for 192.168.5.75:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 49ms, Average = 12ms
C:\Documents and Settings\Administrator>

In the example shown above, the message "**Reply from 192.168.5.75: ..**" indicates that your PC can reach the device with that IP address, and that address is in use (i.e., you cannot use it for your encoder).

d. Since the ping test of the IP address we tried showed the address was in use, try another number between 1 and 254. For example, let's ping 192.168.5.20. At the DOS prompt, enter: **ping 192.168.5.20**


C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator>ping 192.168.5.20
Pinging 192.168.5.20 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.5.20:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\Documents and Settings\Administrator>

e. In this test, the message "Request timed out" indicates that your PC cannot reach the device with that IP address, and that address is probably not in use. Use this IP address for an encoder channel and enter it into Table 2 above. If this test indicated that this IP address is in use, try other IP addresses using the steps above until an unused address is found.

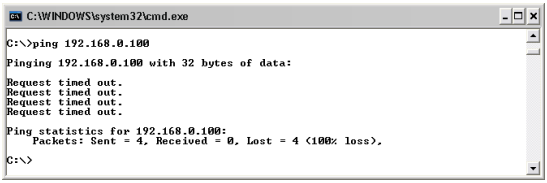
f. Repeat the steps above to find unused IP addresses for the other three encoder channels. Enter them into Table 2.

Check LAN for default IP address compatibility

Because all DIGIOP™ Black encoders and encoders are factory configured with the static IP address 192.168.0.100, check the LAN before connecting your encoder to ensure that network conflicts with existing devices won't occur.

At a Microsoft Windows computer attached to the LAN subnet where the encoder will be connected, open a Command Prompt window and enter:

ping 192.168.0.100



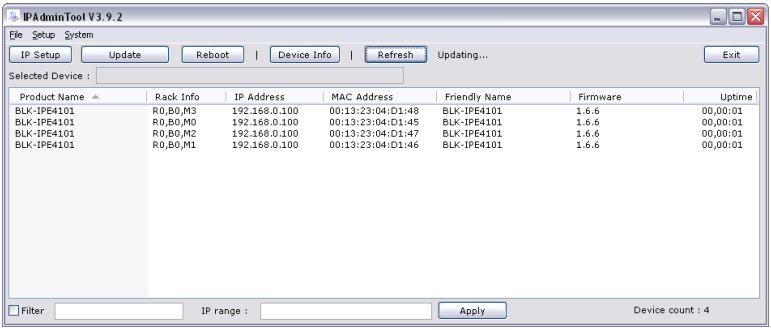
The "Request timed out" response indicates that the IP address is not in use and the encoder can be connected without causing errors.

Attach your encoder to the network and power it on

Apply power to the encoder. When the encoder powers on, it performs an internal initialization, then establishes a connection to the LAN. Wait until the initialization process completes before continuing. It may take up to 3 minutes for your encoder to initialize.

Configure the encoder IP address

1. Open the IPAdminTool directory on your computer, then double click the file **IPAdminTool.exe** to start the application. When the IPAdmin Tool starts, it will discover all the IP devices it supports that exist on the network. The discovery process may take a few minutes. The following window shows a typical report from an unconfigured 4-channel encoder.



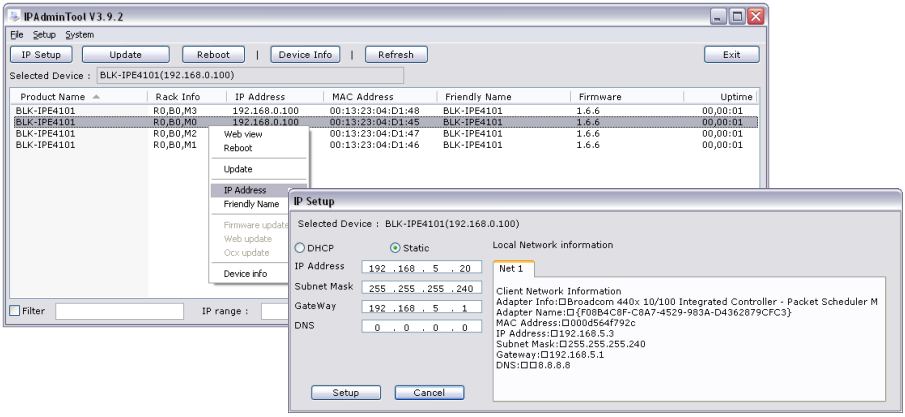
Check the list of devices found by IPAdmin Tool. You can identify your encoder by the MAC addresses. The MAC addresses are assigned during manufacture and can be found on the label on the underside of the unit. In networks without DHCP, the initial IP address of each channel is 192.168.0.100.

The Rack Info field "M" number is directly associated with the Vin channel (M0 for Vin1, M1 for Vin2, etc.). Notice that in the display the Rack Info identifiers do you appear in order. See the following table for the example shown above.

Rack Info	Vin Channel	Initial IP Address (no DHCP)	MAC Address
R0, B0, M0	Vin1	192.168.0.100:	00:13:23:D4:D1:45
R0, B0, M1	Vin2	192.168.0.100	00:13:23:D4:D1:46
R0, B0, M2	Vin3	192.168.0.100	00:13:23:D4:D1:47
R0, B0, M3	Vin4	192.168.0.100	00:13:23:D4:D1:48

If an encoder channel was not found, click the **Refresh** button every minute until the four channels for your encoder appear in the list.

2. Right click on the entry for the R0,B0,M0 channel (Vin1) of your encoder, then select **IP Address**.



IP Setup window

3. In the IP Setup window:

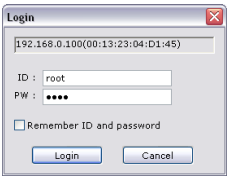
   a. Select the Static option if it is not selected. This option is required if video from the encoder will be recorded by a network DVR, or if you want to view video from the encoder across a WAN (Internet).

   b. Enter the IP address for R0,B0,M0 from the encoder IP address field in Table 2 to the IP Address field in the IP Setup window.

   c. Enter the subnet mask and gateway for your computer from Table 2 into the Subnet Mask and Gateway fields.

   d. Click **SETUP**, then click **OK** to confirm the change to network settings. A Login window will open.

4. In the Login window, enter the ID and PW (password) for your encoder, then click **Login**. The default administrator ID and PW are **root** and **pass**. After entering the ID and PW, the IP Setup window closes.



5. In the IPAdmin Tool window, click **Refresh** and verify that the entry representing the encoder R0,B0,M0 rack address now shows the new IP address.

6. Repeat the steps above to setup the IP addresses of the remaining three IP channels of your encoder.

2.7 Setup the encoder Basic Configuration

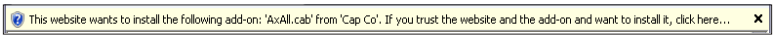
In this procedure, use Microsoft Internet Explorer (IE) browser to setup the encoder administrator and user passwords, date, and time. Repeat this subsection for each encoder IP channel.

1. Open the IE browser.

2. In the URL field (Internet address), enter the IP address for your encoder in the format:

   http://<IP address>/
   where <IP address> is the IP address of your encoder. Following the example earlier in this guide, the entry would be:
   http://192.168.5.20

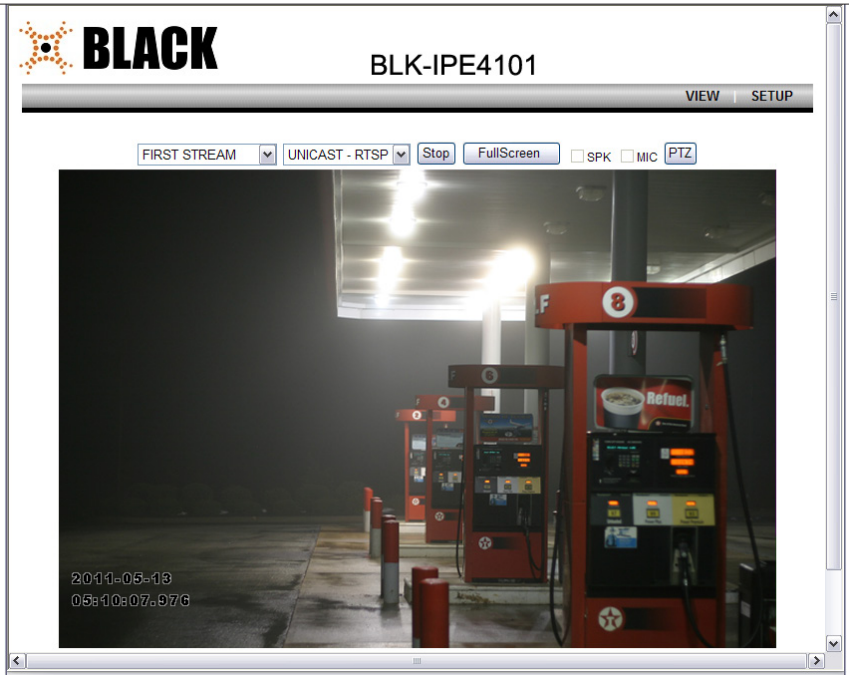
3. If prompted to install an ActiveX control such as AxAll.cab (publisher Cap Co), follow screen prompts to install the software.


This website wants to install the following add-on: 'AxAll.cab' from 'Cap Co'. If you trust the website and the add-on and want to install it, click here...

IE prompt to install ActiveX control

NOTE *To load these ActiveX controls, you may need to adjust the security settings of your browser to accept add-ins from unknown publishers.*

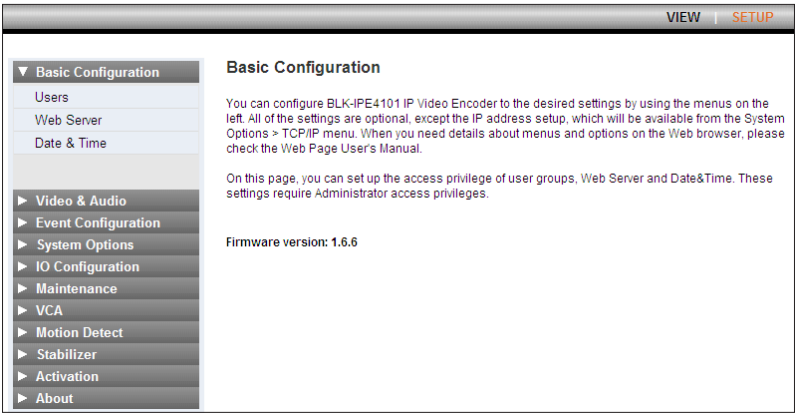
4. Before viewing video from the encoder, a logon prompt may appear. Enter the appropriate ID and PW (password). The default administrator values are:
   ID: **root**
   PW: **pass**



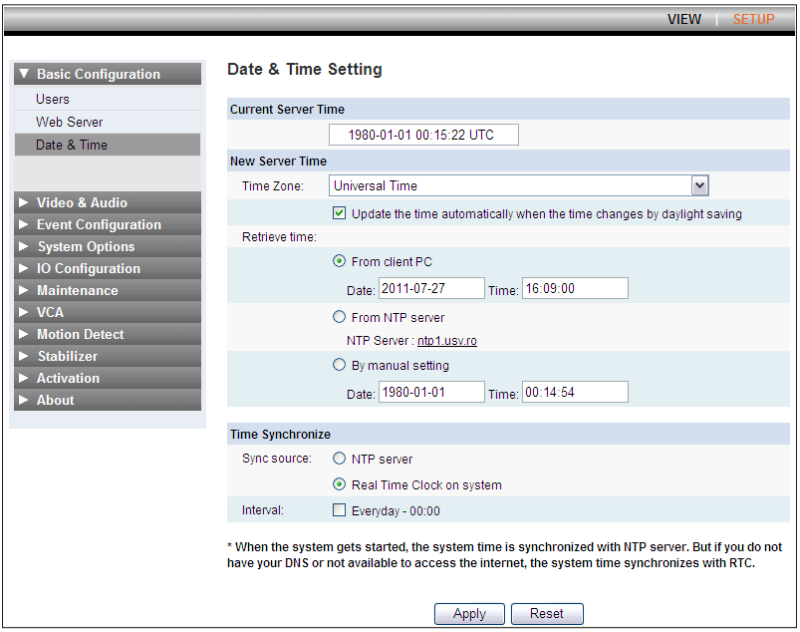
Typical initial camera view through the encoder

NOTE *If, after logging into your encoder, you cannot see live video and the message: "Can not Create XMLDOMDocument Install MSXML4.0" appears, download and install the MS XML 4.0 library. This library can be found at: http://www.microsoft.com/downloads/details.aspx?familyid=3144B72B-B4F2-46DA-B4B6-C5D7485F2B42&displaylang=en*

5. In the camera window, click the **SETUP** link in the upper right corner of the window. Enter the User name and Password for the encoder, and click **OK**. The default administrator values are **root** and **pass**. The Basic Configuration window will open.


VIEW | SETUP
Basic Configuration
Users
Web Server
Date & Time
Video & Audio
Event Configuration
System Options
IO Configuration
Maintenance
VCA
Motion Detect
Stabilizer
Activation
About
Basic Configuration
You can configure BLK-IPE4101 IP Video Encoder to the desired settings by using the menus on the left. All of the settings are optional, except the IP address setup, which will be available from the System Options > TCP/IP menu. When you need details about menus and options on the Web browser, please check the Web Page User's Manual.
On this page, you can set up the access privilege of user groups, Web Server and Date&Time. These settings require Administrator access privileges.
Firmware version: 1.6.6

6. Under the Basic Configuration menu, click **Date & Time**.



In the Date & Time Setting options:

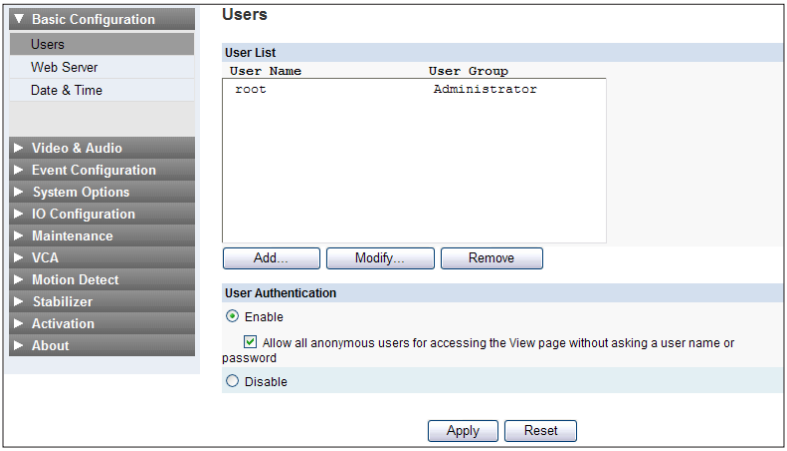
a. Select the Time Zone you prefer.

b. Select the Retrieve Time method, or select the **Set Manually** bullet and enter the appropriate information.

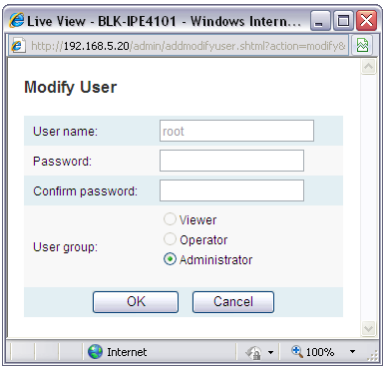
c. Select the Sync Source and Interval you prefer.

d. Click **Apply**.

7. In the Basic Configuration menu, click **Users**.



8. In the User List, click **root**, and then click **Modify** and follow the prompts. Setup the root user with a new password and click **OK**.



9. In the Users menu, click **Apply**, then click **OK** to restart the webserver (if you wish to do so at this time).

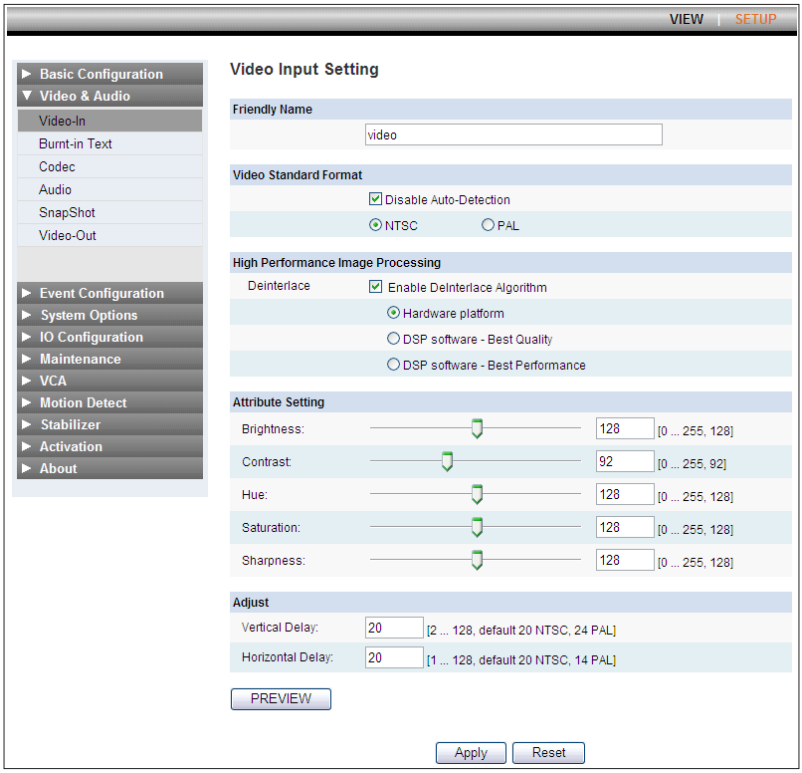
10. Click **Add** to include other administrators, operators or viewers to the user list. Follow the screen prompts to complete the entries.

11. Click **VIEW** in the upper right corner of the window to return to the camera live view.

2.7.1 Image quality adjustments

Adjustments to the image brightness, contrast, hue, saturation, and sharpness are performed through the web browser:

1. From the View window, click: **SETUP** > **Video & Audio** > **Video-In**



2. Scroll to the bottom of the screen and click the **PREVIEW** button. Follow the screen instructions to open the camera view in another IE window.

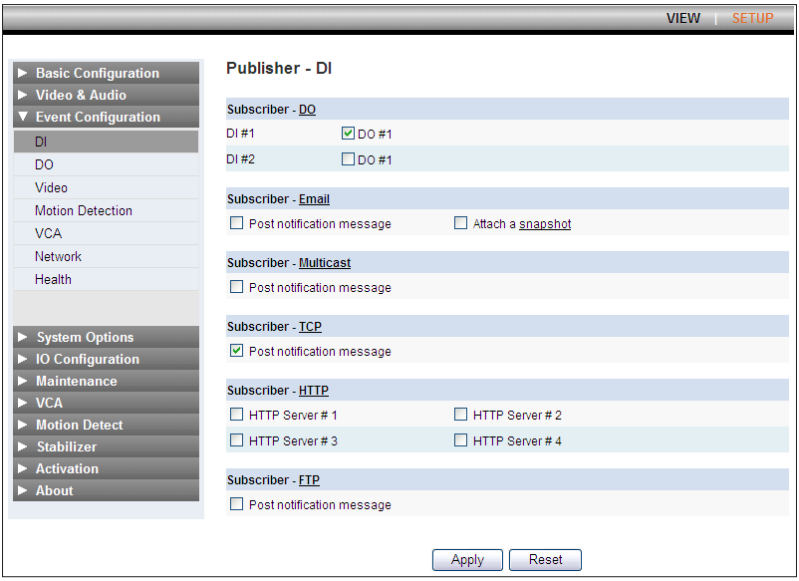
3. While observing the video in the PREVIEW window, adjust the values for brightness, contrast, hue, saturation, sharpness, and/or other parameters on screen. Click **Apply** to see the effect of the change. Make any necessary adjustments to produce the best video image.

4. Close the PREVIEW window and click **VIEW** to return to the normal viewing window.

2.7.2 Setup sensor (DI) and alarm (DO) reporting

Each sensor connected to the encoder can be configured to generate an alarm report to either DO device, generate an email with a snapshot, and post a notification message. These options are selected through the IE browser SETUP Event Configuration menus.

1. From the VIEW window, click: **SETUP** > **Event Configuration** > **DI**



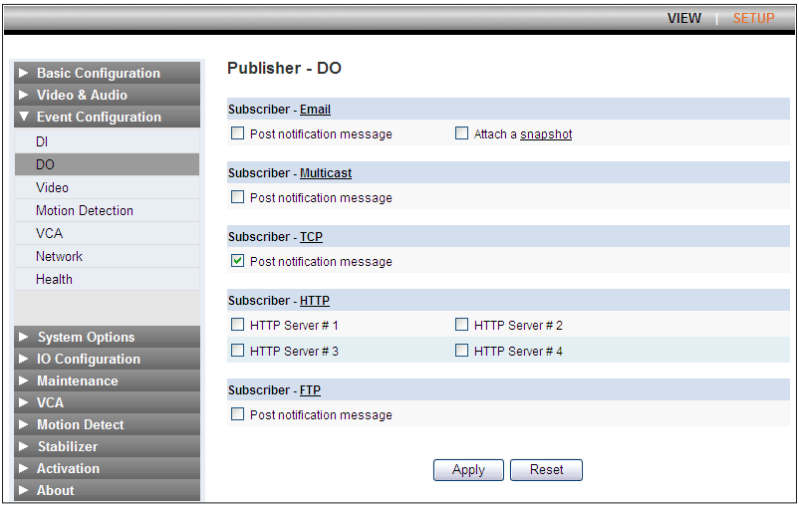
NOTE *DI#2 is not functional in each BLK-IPE4101 IP channel.*

2. On the Publisher DI screen, enable the DO devices for the sensor input (DI).

3. Configure the Subscribe Email, Multicast, TCP, and other settings as needed.

4. Click **Apply**.

5. Under the Event Configuration Menu, click **DO**.



6. Configure the Subscribe Email, Multicast, and TCP settings as needed.

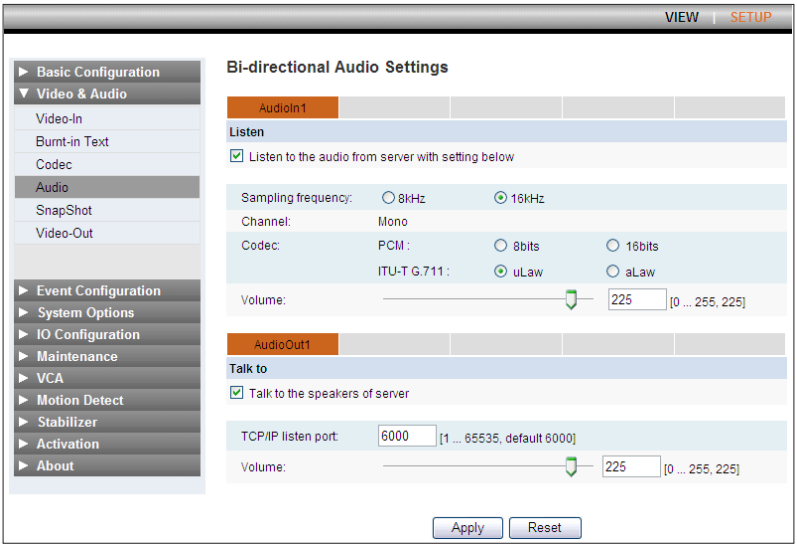
7. Click **Apply**.

8. Click **VIEW** to return to the normal viewing window.

2.8 Final installation checks

During final installation checks, the audio system, sensors and reporting devices, and the RS-485 connection are checked.

1. On the VIEW screen, click **SETUP** > **Video & Audio** > **Audio** to open the Bi-directional Audio Settings menu.



2. In the Bi-directional Audio Settings menu, click the checkboxes to select "Listen to the audio from server with setting below" and "Talk to the speakers of server".

3. Click **Apply**, and then click **VIEW** to return to the camera view screen.

4. On the VIEW screen, check the **SPK** and **MIC** options to enable the speaker at the encoder and the microphone on your computer.

5. At your computer, listen for sounds from the microphone at the encoder. If necessary, adjust the volume from the encoder. Click: **SETUP** > **Video & Audio** > **Audio**
to re-open the Bi-directional Audio Settings menu. In the Listen frame, adjust the volume to an appropriate level. Click **Apply**.

6. Use a microphone at your PC to send audio to the encoder speakers. Verify that your microphone audio is heard at the speaker.

To adjust the speaker volume go to the Bi-directional Audio Settings menu. In the **Talk to** frame, adjust the volume to the preferred level. Click **Apply**.

7. At each (DI) sensor, cause a condition that would be produce an alarm condition. Verify that the alarm reporting (DO) device indicates the alarm, and that the alarm is reported as configured through the browser.

8. If an RS-485 device was connected to the encoder, use the browser PTZ button and verify the RS-485 connection.

2.9 Cleaning

Clean the encoder with an approved cleaning solution and a lint free cloth.

- Dust can be removed from the unit by wiping it with a soft damp cloth. To remove stains, gently rub the surface with a soft cloth moistened with a mild detergent solution, then rinse and dry it with a soft cloth.
- Remove all foreign particles, such as plastic or rubber materials, attached to the encoder housing. These may cause damage to the surface over time.

CAUTION

Do not use benzene, thinner or other chemical products on the encoder assembly; these may dissolve the paint and promote damage of the surfaces. Before using any chemical product, read the accompanying instructions carefully.

SECTION 3
Specifications

Table 3. Specifications

Parameter		Value
Video	Number of Streams	Dual Stream per channel, Configurable
	Input channel	4 channels
	Output Channel	1 channel (loop out)
	Compression	H.264, MPEG-4, MJPEG Selectable per Stream
	Resolution	D1 / 4CIF/ 2CIF / VGA / CIF / QVGA / QCIF
	Compression FPS	120 fps @ D1 for 4 channels
	Video input range	Minimum: 0.25 V p-p; Typical: 1 V p-p; Maximum: 2 V p-p
Audio	Input / Output	4/4 channels
	Data Format	PCM & G.711
Network		10/100Base-T
DI/DO (Digital Input/Output)		4/4
RS-232C		Supported
RS-485		Supported
De-interlacing		Oprional On/Off
Motion Detection		Supported (DSP)
OSD		Supported (DSP)
Protocols		TCP/IP, UDP/IP, HTTP, RTSP, RTCP, RTP/UDP, RTP/TCP, SNTP, mDNS, UPnP, SMTP, SOCK, IGMP, DHCP, FTP, DDNS, SSL v2/v3, IEEE 802.1X, SSH, SNMP v2/v3
External Storage		USB 2.0
Power Source		12 V DC (DC jack)
Power consumption		1100 mA @ 12 V DC (approx.)
Operating Temperature		-4F ~ 140 °F (-20 °C ~ 60 °C)
Operating Humidity		Up to 85% RH (non-condensing)
Dimension		5.39" (W) x 1.49" (H) x 7.44" (D) (137mm x 38mm x 189mm)
Weight		1.72 lbs. (780g)

Table 4. Video Content Analysis (optional)

VCA Presence	
High Performance	Advanced Tracking Algorithm, Low False Alarm Rate
Easy to Use	Intuitive Web Browser Interface
Detection Zones	Multi-segment Polygons and Lines
On-screen Display	Real-time Display of Tracking Data and Events
Image Stabilization	
Electronic Stabilization	Removes camera sway

APPENDIX A
Troubleshooting

A.1 Reboot encoder

NOTE *The reboot process lasts about 4 minutes, during which time the encoder will not respond to the IPAdmin Tool or transmit video to a web browser*

The encoder can be rebooted in two ways:

1. Using the IPAdmin Tool:
    a. Start the IPAdmin Tool.
    b. Find the entry for the encoder you want to reboot and click it to select (highlight) it.
    c. Click the **Reboot** button and enter the administrator ID and PW.
    d. Click **Refresh** to re-discover the encoder.
2. Using the reset button on the encoder:
    a. Press and hold the reset button on the encoder for 5 seconds.
    b. Start the IPAdmin Tool.
    c. Click **Refresh** to re-discover the encoder.

A.2 Set encoder to factory default network settings

The encoder network settings can be forced to the factory default values:

Network settings of each IP channel acquired through DHCP on networks with DHCP
- OR -
Network settings of each IP channel forced to the following on networks were no DHCP server can be found:

- IP address – reset to 192.168.0.100
- Subnet mask – reset to 255.255.0.0
- Gateway – reset to 192.168.0.1
- User ID – reset to **root**
- Password – reset to **pass**

To force the encoder to the factory network settings:

1. Disconnect the power (adapter) from the encoder.
2. While pressing and holding down the reset button, power on the encoder.
3. Release the Reset button 5 seconds after applying power.
4. Wait for the encoder to reboot.

A.3 Check firmware version

Firmware is software embedded in the encoder that determines many of its features and functionality. The current firmware version number in your encoder can be found by:

1. Connect to your encoder with ID.
2. Click SETUP and log into the encoder. The firmware version is shown on the Basic Configuration screen.

A.4 Support

If you cannot resolve an issue, please contact the DIGIOP™ Support at 1.877.972.2522 for assistance. When you contact support, please provide the server reports, log file and a brief description of the problem, if possible.

- To generate server reports, enter the following into the IE address field:

  https://<IP ADDRESS>/nvc-cgi/admin/param.cgi?action=list
  - and -
  https://<IP ADDRESS>/nvc-cgi/admin/vca.cgi?action=list

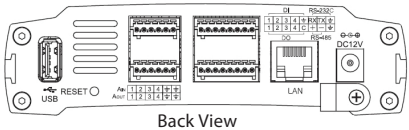
  where <IP ADDRESS> is the IP address of your encoder. The server report contains important information about the device, as well as a list of the current parameters.

- To generate a log report, use IE to log into the unit. In the View screen, click the following items, entering security information when required:

  SETUP > **Maintenance** > **System Log** > **LOG LIST**

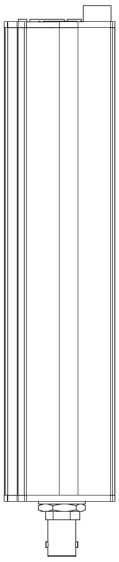
  Click the name of the Log List of interest to open the file.

APPENDIX B
Dimensions

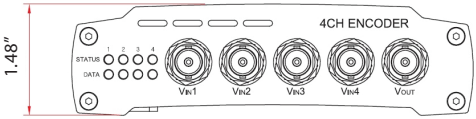


Back View

Top View



Side View



Front View